



MODULE SPECIFICATION

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| Academic Year (student cohort covered by specification) | 2022-23 |
| Module Code | 3333 |
| Module Title | Molecular Biology |
| Module Organiser(s) | Dr Johannes Dessens |
| Faculty | Infectious & Tropical Diseases |
| FHEQ Level | Level 7 |
| Credit Value | CATS: Non-credit bearing as supplementary teaching only ECTS: Non-credit bearing as supplementary teaching only |
| HECoS Code | 100948 |
| Term of Delivery | Term 1 |
| Mode of Delivery | For 2022-23 this module will be delivered by predominantly face-to-face teaching modes. Where specific teaching methods (lectures, seminars, discussion groups) are noted in this module specification these will be delivered by predominantly face-to-face sessions. There will be a combination of live and interactive activities (synchronous learning) as well as recorded or self-directed study (asynchronous learning), plus face-to-face laboratory classes. |
| Mode of Study | Full-time |
| Language of Study | English |
| Pre-Requisites | None |
| Accreditation by Professional Statutory and Regulatory Body | None |
| Module Cap (Indicative number of students) | 70-80 (numbers may be capped due to limitations in facilities or staffing) |
| Target Audience | The module is designed particularly for students who wish to reinforce or update their core knowledge of molecular biology. It is open to MSc programmes in the Faculty of Infectious & Tropical Diseases and is a pre-requisite for modules 3131, 3158 and 3160. |
| Module Description | This module covers the basic concepts in molecular biology through a series of lectures and demonstrations. |
| Duration | 10 weeks at 0.5 days per week |
| Timetabling slot | Term 1 |



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| Last Revised (e.g. year changes approved) | July 2021 |
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| Programme(s) | Status |
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| This module is linked to the following programme(s) | |
| MSc Medical Microbiology | Recommended Option |
| MSc Medical Entomology for Disease Control | Recommended Option |
| MSc Medical Parasitology | Recommended Option |
| MSc Immunology of Infectious Diseases | Recommended Option |

Module Aim and Intended Learning Outcomes

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| Overall aim of the module |
| The overall module aim is to: <ul style="list-style-type: none"> provide a grounding in molecular biology. |

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| Module Intended Learning Outcomes |
| Upon successful completion of the module a student will be able to: <ol style="list-style-type: none"> Describe the basic structure and biochemistry of nucleic acids and proteins and discriminate between them; Identify the principles of DNA replication, transcription and translation and explain how they relate to each other; Describe the main principles of methods for preparation of DNA, such as DNA extraction, cloning, transformation and PCR, and analyse their applications; Describe the main principles of methods for analysis of DNA, such as hybridization, restriction analysis and DNA sequencing and analyse their applications; Build and interpret phylogenetic trees representing evolutionary relationships among organisms; Describe and discuss applications of molecular biology, including the use of bioinformatics and genomics. |

Indicative Syllabus

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| Session Content |
| The module is expected to cover the following topics: <ul style="list-style-type: none"> Description and integration of the biochemistry of nucleic acids; Genetic diversity; Gene expression; Basic methods used in molecular biology; How molecular biology relates to other fields of science. |

Teaching and Learning

Notional Learning Hours

| Type of Learning Time | Number of Hours | Expressed as Percentage (%) |
|---------------------------------|-----------------|-----------------------------|
| Contact time | 20 | 20 |
| Directed self-study | 0 | 0 |
| Self-directed learning | 50 | 50 |
| Assessment, review and revision | 30 | 30 |
| Total | 100 | 100 |

Student contact time refers to the tutor-mediated time allocated to teaching, provision of guidance and feedback to students. This time includes activities that take place in face-to-face contexts such as lectures, seminars, demonstrations, tutorials, supervised laboratory workshops, practical classes, project supervision as well as where tutors are available for one-to-one discussions and interaction by email.

The division of notional learning hours listed above is indicative and is designed to inform students as to the relative split between interactive and self-directed study.

Teaching and Learning Strategy

A grounding of molecular biology is provided through a combination of recorded lectures (screencasts) and demonstrations. These will cover various aspects of basic molecular biology including nucleic acids and proteins; gene expression; DNA analysis; gene cloning; molecular evolution; typing and diagnostics. A summative assessment will be carried out via a timed Quiz-style test on Moodle at the end of the module. This assessment does not count toward the grade.



Assessment

Assessment Strategy

The assessment for this module has been designed to measure student learning against the module intended learning outcomes (ILOs) as listed above.

The assessment for this module in term 1 will be online.

There will be an online Quiz-based assessment at the end of the module, with feedback in the final week. The Quiz can be taken at any time during week 10, but once started has to be completed within 1 hour.

Attendance of modules 3131, 3158 and 3160 in Term 2 may be subject to successful completion (mark >70%) of this assessment.

The assessment for this module does not count toward the overall award grade.

Summative Assessment

| Assessment Type | Assessment Length (i.e. Word Count, Length of presentation in minutes) | Weighting (%) | Intended Module Learning Outcomes Tested |
|--------------------------------------|--|---------------|--|
| Timed Test (in-module test e.g. MCQ) | 1 hour | 100 | 1 - 6 |

Resitting assessment

Resits will accord with the LSHTM's [Resits Policy](#)

The Resit assessment will be the same assessment type as the first attempt (see previous table).

Resources

Other resources

A module handbook containing information about each session and key references for the module. Additional study material will be provided during the module where needed via Moodle.



Teaching for Disabilities and Learning Differences

The module-specific site on Moodle provides students with access to lecture notes and copies of the slides used during the lecture prior to the lecture (in pdf format). All lectures are recorded and made available on Moodle as quickly as possible. All materials posted up on Moodle areas, including computer-based sessions, have been made accessible where possible.

The LSHTM Moodle has been made accessible to the widest possible audience, using a VLE that allows for up to 300% zoom, permits navigation via keyboard and use of speech recognition software, and that allows listening through a screen reader. All students have access to "SensusAccess" software which allows conversion of files into alternative formats.

For students who require learning or assessment adjustments and support this can be arranged through the Student Support Services – details and how to request support can be found on the [LSHTM Disability Support pages](#).